

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-9, 22-25, 41-45, 81-88, and 116 have been cancelled. Claims 117-213 are pending in the application, with claims 117, 131, 148, 156, 164, 175, 183, 190 and 207 being the independent claims.

Specifically, support for the amendments and the new claims can be found at least in the claims as originally filed and at pages 29, 65, 102, 106 and throughout the Examples 1-4 of the specification. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

The Claim Objection Has Been Accommodated

The Examiner objects to claim 8 because of the use of trademarks in the claims (Office action at page 2). Claim 8 has been cancelled thus rendering this objection moot. Therefore, withdrawal of this objection is respectfully requested.

The Rejections Under 35 U.S.C. § 112, First Paragraph Are Traversed

Claim 1 is rejected under 35 U.S.C. § 112, 1st paragraph. In addition, claims 5, 6 and 81-88 are also rejected under 35 U.S.C. § 112, 1st paragraph. According to the Examiner, the specification does not reasonably provided enablement for derivatives,

variants or mutants thereof (Office action at pages 3 and 4).

Although claims 1, 5, 6, and 81-88 have been cancelled, Applicants respectfully traverse this rejection.

Applicants submit that the application does in fact enable the preparation of mutants and fragments of reverse transcriptases having reduced, substantially reduced or lacks RNase H activity. *See* specification at pages 22, 32-33, 53-62, 69-76, 84-107, and Examples 1- 4. For example, the specification clearly teaches how to generate reduced and substantially reduced reverse transcriptases as well as reverse transcriptases lacking RNase H activity (see specifically at pages 56-57 and 73-74). Moreover to derive at the native or mutated ASLV RT, specific primers are disclosed to amplify the area of interest. *See* specifically pages 55-57 and 70-71 of the specification.

Thus, one of ordinary skill in the art could easily adapt the teachings of the specification, in light of the available molecular techniques at the time, to derive at any mutants and fragments of viral reverse transcriptases having reduced, substantially reduced, or lacking RNase H activity.

Claim 6 is rejected under 35 U.S.C. § 112, 1st paragraph. Specifically, the Examiner contends that:

[t]he AMV α H⁻ reverse transcriptase and AMV β p4/ β p4 reverse transcriptase must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public.

Office Action at page 5, lines 9-10. The Examiner further suggests that a deposit would obviate this rejection. Although claim 6 has been cancelled, Applicants respectfully traverse this rejection.

Applicants submit that claims drawn to α subunits, β subunits, or β p4 subunits, or

a combination thereof are fully enabled as disclosed by the specification to one of ordinary skill in the relevant art. The specification discloses that specific subunits of ASLV can be obtained by using disclosed primers. *See* specification at pages 72-75. Specifically, the RSV beta subunit is first generated by using primers of SEQ ID NOs: 1, 2, 3 and 4 to amplify the subunit from plasmid pJD100 which is publicly available (specification at page 55). The specification specifically discloses that the entire gene for RSV RT can be readily produced from mRNA using SEQ ID NO: 13 (page 70-71). The alpha subunit can then be generated using SEQ ID NOs: 14 and 15 and subsequently separated from the entire gene (page 74). Thus, β p4 construct can be generated using only SEQ ID NOs: 1 and 2 from pJD100 (specification at page 56). The alpha, beta, and beta p4 subunits can be mutated at the RNase H region by using SEQ ID NO: 5.

Using similar methods, the AMV RT cDNA can be cloned from purified AMV RNA which is publicly available using SEQ ID NO:13 (specification at page 71). The AMV beta subunit can be isolated and amplified using SEQ ID NOs: 16, 2, 3, 9, and 4 to insert a stop codon in place of the p4 cleavage site (specification at page 72). Mutations in the RNase H domain in the beta subunit are achieved using oligonucleotide #8 (specification at page 73). The AMV alpha subunit can be amplified using SEQ ID NOs: 6 and 7 and mutagenized using oligonucleotide #8. In the same way, the β p4 construct is the beta gene in which the p4 cleavage site has not been replaced by a stop codon. Thus this subunit can be generated using SEQ ID NOs: 16, 2, 3 and 9.

Therefore, it is easily appreciated by one of ordinary skill in the relevant art that the specification fully enables the repetitive production of reverse transcriptases having RNase H activity or having reduced, substantially reduced, or lacking RNase H activity

without undue experimentation. Accordingly, Applicants respectfully request that this rejection be withdrawn.

The Rejections Under 35 U.S.C. § 102 Are Traversed

Claims 1-3, 8, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Aatsinki *et al.* (*Biotechniques* 16:282-8 (1994)). According to the Examiner, Aatsinki *et al.* disclose a composition for one-step reverse transcription PCR comprising both AMV RT and *Taq* DNA polymerase (Office action at page 6, last paragraph). Claims 1-3, 8, and 9 have been cancelled. Therefore, Applicants respectfully request this rejection be withdrawn.

Claims 41, 42, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Grandgenett *et al.* (*Proc. Nat. Acad. Sci.*:70:230-4 (1973)). Claims 41, 42, and 45 have been cancelled. Therefore, Applicants respectfully request this rejection be withdrawn.

Claims 41-44 and 116 are rejected under 35 U.S.C. 102(b) as being anticipated by Kotewicz *et al.* (U.S. Patent No. 5,244,797). Claims 41-44 and 116 have been cancelled. Therefore, Applicants respectfully request that this rejection be withdrawn.

The Rejections Under 35 U.S.C. § 103 Are Traversed

Claims 4, 5 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Aatsinki *et al.* in further view of Kotewicz *et al.* (Office action at page 8, first paragraph). Claims 4, 5 and 7 have been cancelled. Therefore, Applicants respectfully request that this rejection be withdrawn.

Claims 22-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over

Aatsinki *et al.* Claims 22-25 have been cancelled. It is respectfully requested that this rejection be withdrawn.

Claims 81-83 and 85-87 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kotewicz *et al.* Claims 81-83 and 85-87 have been cancelled. Therefore, Applicants respectfully request that this rejection be withdrawn.

Claims 81, 82, 84-86, and 88 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Grandgenett *et al.* Claims 81, 82, 84-86 have been cancelled. Therefore, Applicants respectfully request that this rejection be withdrawn.

The Non-statutory Double Patenting Rejections are Traversed

Claims 43 and 44 are rejected under the judicially created doctrine of Non-obviousness double patenting over claims 1 and 2 of U.S. Patent No. 5,244,797 (Kotewicz *et al.*, cited herein after as the '797 patent). Claims 43 and 44 have been cancelled, thus rendering this portion of the rejection moot. Therefore, withdrawal of this portion of the rejection is respectfully requested.

Claims 43 and 44 are rejected under the judicially created doctrine of Non-obviousness double patenting over claims 1, 3-19, 22, 24-47, 51, 54-79, 83, 86-109, 113, 116-126, 128-139, 141-151, 153-182 and 184 of U.S. Patent No. 6,063,608 (Kotewicz *et al.*, cited herein after as the '608 patent). Claims 43 and 44 have been cancelled, thus rendering this portion of the rejection moot. Therefore, withdrawal of this portion of the rejection is respectfully requested.

Other Matters

Applicant acknowledges that the Examiner has indicated that subject matter of claim 6 is allowable. Therefore, Applicants have submitted new claims to encompass the allowable subject matter of claim 6. Therefore, Applicants respectfully request that the rejections be withdrawn and the currently pending claims be allowed.

The Examiner has marked box 17 on the Form PTO-326 indicating that Forms PTO-1449 (Paper Nos. 3-6 and 11) were attached with the Office Action. However, Applicants note that they have not yet received the Examiner's initialed copies of the Forms PTO-1449 that were submitted with Applicants' IDS and Supplemental IDS's filed from May 20, 1999, June 29, 2000, July 19, 2000, August 17, 2000, September 14, 2000 and April 17, 200, respectively. Therefore, it is respectfully requested that the Examiner initial and return a copy of all of the submitted Forms PTO-1449, and indicate in the official file wrapper of this patent application that the documents listed thereon have been considered.

Conclusion

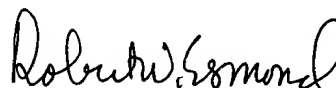
All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for

allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Date: Feb 14, 2002

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Version with markings to show changes made

In the Claims:

Claims 1-9, 22-25, 41-45, 81-88, and 116 have been cancelled.

New claims 117-213 are sought to be entered.